Effectiveness of a Prison-Based Treatment Program for Male Perpetrators of Intimate Partner Violence: A Quasi-Experimental Study of Criminal Recidivism

Author
Susan McNeeley, Ph.D.
Research Analysis Specialist
Email: susan.mcneeley@state.mn.us

1450 Energy Park Drive, Suite 200
St. Paul, Minnesota 55108-5219
651/361-7200
TTY 800/627-3529
www.doc.state.mn.us
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Research Summary

Despite increasing interest in programming for perpetrators of intimate partner violence (IPV), the literature provides weak support for the effectiveness of these interventions. However, there are few studies that evaluate programs offered to felony IPV offenders who are serving prison sentences. This study uses a quasi-experimental design to evaluate the effectiveness of a prison-based implementation of a popular IPV intervention in reducing general and offense-specific recidivism among 169 men released from state prison in 2017. Because recidivism data were collected through early March 2019, the average follow-up period was approximately 20 months for both the control group and experimental group. Observable selection bias was minimized by using propensity score matching to create a comparison group of 169 non-participants released in 2017 who were not significantly different from the program participants. Cox regression models were used to predict general rearrest, reconviction, reincarceration, and supervised release revocation, as well as rearrest and reconviction for any violent offenses and rearrest and reconviction for domestic violence offenses in particular. No significant differences in any type of recidivism were found between the comparison group and those who participated in treatment, regardless of whether the participant completed or failed to complete the program. The findings suggest that these interventions are no more successful when offered within prisons than when offered in the community. The study concludes by making recommendations for increasing the effectiveness of prison-based domestic violence programming.

Introduction

In the United States, 22-25% of women and 8-14% of men experience assault by an intimate partner at some point in their lifetime (Breiding et al., 2014; Tjaden & Thoennes, 2000). Intimate partner violence (IPV) has serious medical, psychological, and financial effects for victims and for other members of the family, including children (Tjaden & Thoennes, 2000; Weithorn, Carter, & Behrman, 1999). In the 1980s, policies advocating mandatory arrest for domestic violence became common (Sherman & Berk, 1984), resulting in an increasing number of prosecutions and incarcerations of men who assault intimate partners. Due to this increase, intervention programs aimed at IPV perpetrators – especially those that are facilitated in group settings – have increasingly been implemented within the criminal justice system.

One of the most common of these interventions is the Duluth Model, which is rooted in feminist arguments that partner abuse against women is caused by patriarchal attitudes. Approximately half of programs in the United States (47-53%) use it as the primary or secondary treatment approach (Cannon, Hamel, Buttell, & Ferreira, 2016; Price & Rosenbaum, 2009). Research suggests that programs based on the Duluth Model have only limited success in reducing recidivism (see meta-analyses by Arias, Arce, & Vilariño, 2013; Babcock, Green, & Robie, 2004; Feder & Wilson, 2005; Miller, Drake, & Nafziger, 2013). However, most studies have evaluated interventions for IPV offenders serving sentences in the community, often for misdemeanor offenses. Therefore, the effectiveness of the program in a prison setting is still not well known. The current study addresses these gaps in the literature by conducting an outcome evaluation of a Duluth Model-based intervention for felony offenders incarcerated in Minnesota state prisons.

The Duluth Model Intervention for Domestic Abuse

The Duluth Model is based on the assumption that IPV stems from patriarchal attitudes

that allow men to dominate relationships, leading to violence against their partners. Programs based on this model attempt to target and change those attitudes so that participants develop skills for maintaining healthier intimate relationships, thereby reducing future IPV. The group treatment program employs group facilitators who challenge men's perceptions that they have a right to control their partners, using the "Power and Control Wheel" to help participants understand their patterns of abusive behavior (Pence & Paymar, 1993). The facilitators then emphasize features of egalitarian relationships, demonstrated by the "Equality Wheel," that men who participate in the program are encouraged to adopt (Pence & Paymar, 1993). The Duluth Model also requires a coordinated community response (CCR) in which different criminal justice agencies make efforts to protect survivors and hold perpetrators accountable (Shepard, Falk, & Elliott, 2002).

The literature on the effectiveness of this treatment is mixed. Some evaluations found that men who complete programs based on the Duluth Model were significantly less likely to reoffend (Babcock & Steiner, 1999; Gondolf, 2002; 2004; Hasisi, Shoham, Weisburd, Haviv, & Zelig, 2016; Murphy, Musser, & Maton, 1998; Palmer, Brown, & Barrera, 1992). For example, Davis, Taylor, and Maxwell's experimental evaluation (2000) found lower rates of recidivism among treatment participants; however, their examination of the effects of treatment length led them to conclude that the intervention may have only reduced violence while offenders were still under court control rather than actually changing their behavior (see also Maxwell, Davis, & Taylor, 2010). Other evaluations also show lower recidivism rates among completers than dropouts (Bennett, Stoops, Call, & Flett, 2007; Coulter & VandeWeerd, 2009; Dobash, Dobash, Cavanagh, & Lewis, 1996). In addition, the program may also influence factors other than re-assault: for example, Taylor & Maxwell (2009) found that program participants self-reported less controlling behavior and less alcohol and marijuana use.

However, many experimental (Dunford, 2000; Feder & Dugan, 2002; Feder & Forde, 2000; Ford & Regoli, 1993; Labriola, Rempel, & Davis, 2008; Lin et al., 2009; Saunders, 1996; Taylor & Maxwell, 2009; Tolleffson & Gross, 2006) and quasi-experimental studies (Bowen, Gilchrist, & Beech, 2005; Gordon & Moriarty, 2003; Haggård, Freij, Danielsson, Wenander, & Långström, 2017; Newell, 1994) showed no significant reduction in violence among participants of programs based on the Duluth Model. Indeed, some studies found that men in these programs had significantly higher rates of violence than non-participants (e.g., Harrell, 1991; Shepard, 1992). In addition, Feder and Dugan's evaluation of a Florida program (2002) showed that the program did not affect attitudes toward women or beliefs about wife beating.

Further, several meta-analyses on domestic violence interventions provide little support for the Duluth Model. In 2004, a meta-analysis by Babcock and colleagues examining 19 effect sizes found a 5% reduction in recidivism among participants of Duluth programs. Importantly, however, they noted that more support was found in quasi-experimental studies than in true experiments. Feder and Wilson's meta-analysis of ten studies (2005) showed a 13-20% reduction in recidivism according to official statistics, but no effect according to victim reports. Similarly, meta-analyses conducted by Miller et al. (2013), which included six effect sizes for Duluth-like programs, and Arias et al. (2013), which included 29 effect sizes, found that programs based on the Duluth Model had no statistically significant effect on recidivism. More recently, a meta-analysis conducted by Cheng, Davis, Jonson-Reid, & Yaeger (2019) echoed previous results: Studies showed less impact of batterer intervention programs when they had greater methodological rigor and when they measured recidivism through victim reports.

Overall, the literature provides only limited support for the effectiveness of domestic violence treatment based on the Duluth Model. However, many of the programs that have been

evaluated have targeted offenders who committed misdemeanors or low-level felonies. Past studies' focus on offenders who commit less serious offenses might explain the limited support found to date. Men who commit more serious acts of IPV may respond differently to the treatment, but it is not well known whether the program is effective with this population. In addition, most of the evaluated programs discussed above were provided to offenders in the community; therefore, it is still not clear whether similar programs that target incarcerated offenders are effective. To address these gaps, the current study evaluates general and offense-specific recidivism among participants of a prison-based IPV intervention based on the Duluth Model. To that end, the study employs a quasi-experimental design to compare offenders who completed the DV program to eligible offenders who did not participate in the program.

Minnesota Domestic Violence Intervention Pilot Program

Due to a rising population of incarcerated offenders serving sentences for domestic violence offenses in Minnesota, the Minnesota Department of Corrections (MnDOC) has identified domestic violence treatment as an important programming need. However, with the exception of an optional track that has been available as part of some chemical dependency (CD) programs since 2014, offenders in Minnesota state prisons have not had opportunities to participate in programming to address their behavior related to IPV. Therefore, in November 2016, the MnDOC Victim Assistance and Restorative Justice unit obtained an Office of Justice Programs (OJP) Community Crime Prevention Grant to implement the Domestic Violence Intervention Pilot Program (DVIPP), a program for male offenders serving sentences for IPV offenses.

The DVIPP is a 16-week group treatment program that utilizes the Duluth Model's curriculum *Creating a Process of Change for Men Who Batter*. The program, in which groups met for two sessions per week, used interactive classes, video vignettes, and control and equality logs

to help men identify their beliefs that support using violence against women and learn strategies to change their behavior. The program was administered by one full-time and one part-time grant-funded Corrections Transitions Coordinator (CTC) who co-facilitated group treatment sessions. In accordance with the Duluth Model design, group sessions were co-facilitated by one male and one female. The full-time CTC also worked with supervision agents to incorporate community reentry support that is specific to IPV, and conducted follow-up conversations with supervision agents at 30 and 60 days after release and with offenders at 90 and 120 days after release.

To be eligible for the program, male offenders had to meet the following criteria: (1) have active or inactive sentences for felony domestic violence offenses against an intimate partner or a history of misdemeanor domestic violence offenses against an intimate partner, (2) be scheduled for release during calendar year 2017,[1] (3) have at least 16 weeks of confinement time remaining on their sentence,[2] (4) be housed in general population in a participating facility,[3] and (5) not have participated in the optional domestic violence track of chemical dependency programming.

Data and Method

Data and Sample

The study used a quasi-experimental design comparing recidivism between program participants and a matched comparison group of non-participants scheduled for release from Minnesota prisons in calendar year 2017. 169 offenders who participated in the program were

[1] While offenders were selected for the program if they were scheduled for release in 2017, five offenders who participated in the program were actually released in 2018. Still, the treatment group had a slightly longer, but not significantly different, follow-up period as the comparison group (treatment group average = 19.84, comparison group average = 19.71, $t = -.427$, $p > .05$).

[2] However, due to delays in program implementation, approximately half of the offenders who participated in the first round of the program were released within eight weeks.

[3] Participants could be located at either Minnesota Correctional Facility (MCF)-Faribault or MCF-Stillwater. MCF-Faribault has minimum (level 2) and medium (level 3) security units, while MCF-Stillwater is a close (level 4) security facility. No significant differences in recidivism were found between participants at the two facilities.

scheduled for release in 2017. Of those, 109 successfully completed the program.[4] The program participants were 50.9% Black, 33.1% White, 9.5% Native American, 5.9% Hispanic, and 0.6% Asian. The participants ranged in age from 22 to 64 years, with an average age of 35.75 years. The majority of participants (91%) were incarcerated for a new sentence, while 9% were incarcerated due to revocation of supervised release. The participants were incarcerated for between 4 and 142 months, with an average length of stay of 17.62 months.

During the same period, 853 offenders with active or inactive sentences for domestic violence against an intimate partner who did not participate were released. Offenders who were offered a chance to enter the program but refused to participate were not included in the comparison group. Offenders who were not located at a participating facility but were otherwise eligible for the program were included in the comparison group. The comparison group was reduced to 552 after 301 offenders were removed from the sample because they participated in CD treatment after a similar curriculum had been introduced within some programming groups. Therefore, the overall sample for this study consisted of 721 offenders, of whom 23% participated in the program and 15% completed the program.

Dependent Variables

Recidivism was measured in four ways: rearrest for a new offense, reconviction for a new offense, reincarceration for a new felony offense, and return to prison due to revocation of supervised release. In addition to general recidivism for any new offending, the study examines offense-specific recidivism. The dependent variables include measures of rearrest and reconviction for any violent (or "person") offenses (i.e., homicide, assault, robbery, criminal sexual conduct, kidnapping, false imprisonment, child abuse, harassment, stalking, threats of violence, and

[4] 33 offenders quit the program voluntarily, while 27 offenders were removed by the program administrators.

violation of orders of protection) as well as rearrest and reconviction for domestic violence (i.e., domestic assault and domestic abuse).[5] These outcomes include both "status" variables indicating whether an offender recidivated and "time" variables measuring the number of months between release and the first recidivism event. Recidivism data were collected through March 10, 2019, resulting in a follow-up period between 9 and 26 months, with an average of 19.7 months.

Arrest and conviction data were obtained electronically from the Minnesota Bureau of Criminal Apprehension (BCA). Reincarceration and revocation data were obtained from the Correctional Operations Management System (COMS) database maintained by MnDOC. It is important to note that the dependent variables only measure recidivism that took place in Minnesota. Because they did not include reoffending that occurred in other states or that went undetected by the criminal justice system, these variables may underestimate the true rates of reoffending.

Independent Variables

Three independent variables relating to program participation were examined. The first treatment variable compares offenders who entered DVIPP (given a score of 1) with a comparison group of offenders who did not (given a score of 0). The second variable, program completion, compares offenders who completed treatment or successfully participated until release (1) with untreated offenders (0). The third variable measures program dropouts by comparing offenders who quit the program or were terminated from treatment (1) with untreated offenders (0).

[5]Measures of offense-specific reincarceration were not used because they were too infrequent; in the matched sample, the number of offenders who were reincarcerated for new violent offenses and new domestic violence offenses were 19 (5.6%) and 15 (4.4%), respectively. While some domestic violence-related behavior can constitute a violation of supervised release, this could not be measured because it was not possible to identify the violations that led to revocation.

Control Variables

Several correlates of recidivism identified by previous research were included as controls. Complete data for each of the measures below were obtained for all offenders. Below is a list of these variables[6] along with a description of how they were created:

- *Minnesota Screening Tool Assessing Recidivism Risk (MnSTARR) 2.0*: The probability that an offender will be reconvicted within three years of release (see Duwe & Rocque, 2017). Scores are then classified into one of four risk levels: "low risk" contains the bottom 40% of scores, "medium risk" contains the next 20%, "high risk" contains the next 20%, and "very high risk" contains the top 20% of scores.
- *Non-sexual violent MnSTARR*: the probability that an offender will be reconvicted for a violent offense within three years of release.
- *Prior convictions*: total number of convictions, excluding the conviction(s) that resulted in the offender's incarceration.
- *Prior felony convictions*: number of convictions for felonies.
- *Felony specialization*: proportion of convictions that were felonies.
- *Prior violent convictions*: number of convictions for violent offenses.
- *Violent specialization*: proportion of convictions that were violent offenses.
- *Prior drug convictions*: number of convictions for drug offenses.
- *Drug specialization*: proportion of convictions that were drug offenses.
- *Prior property convictions*: number of convictions for property offenses.
- *Property specialization*: proportion of convictions that were for property offenses.
- *Metro area*: a rough proxy of urban and rural Minnesota, this variable dichotomizes the offender's county of commitment as within the Twin Cities metropolitan area (1) or Greater Minnesota (0). The seven counties in the Minneapolis/St. Paul metropolitan area are Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.
- *Length of stay*: the number of months between prison admission and release.
- *Institutional discipline*: the number of discipline convictions received during the term of imprisonment prior to release.
- *Suicidal history*: dichotomized as history of suicidal tendencies (1) or no such history.
- *Gang involvement*: number of criteria for security threat group involvement met by the offender.
- *Prison admission type*: dichotomized as new commitment (1) or release return (0).
- *Offender race*: dichotomized as minority (1) or white (0).
- *Offender age*: the age of the offender in years at the time of release.
- *Offender education*: dichotomized as at least high school diploma or equivalent (1) or less than high school diploma (0).
- *Prison visitation*: dichotomized as visited during last confinement (1) or not visited (0).
- *Post-release supervision type*: dichotomized as intensive supervised release (ISR = 1) and

[6] Participation in other treatment programs (such as sex offender treatment, cognitive-behavioral therapy, work release, and correctional boot camp) is an important control variable; however, due to low participation in these programs among the total sample (n = 16 in the unmatched sample), this was not included in the model.

standard supervision or no supervision (0).[7]

Propensity Score Matching

Propensity score matching (PSM) is a popular method used in program evaluations to help achieve balance between treatment and comparison groups. In doing so, PSM can be used to control for observable selection bias. PSM provides estimates of the conditional probability of selection to a particular treatment based on several observed covariates (Rosenbaum & Rubin, 1985). These estimates (i.e., propensity scores) are generated by estimating a logistic regression model in which the dependent variable is program participation. Then, the propensity scores are used to match individuals who entered programming with similar individuals who did not.

The results of the logistic regression model predicting participation in DVIPP are presented in Table 1. The variables included in a propensity score estimation model should consist of those related to the outcome – even if weakly – that affect treatment selection and are not caused by the treatment (Shadish, Cook, & Campbell, 2002). Therefore, the covariates included in the logistic regression model are those that temporally preceded the beginning of DVIPP participation. Several covariates significantly predicted whether offenders participated in DVIPP. Offenders with more prison discipline convictions were less likely to participate in the program. The total number of felony convictions was positively related to program participation, while the number of property convictions was negatively related to program participation. Offenders who were committed to prison for a new commitment were more likely to participate in the program than those who were committed to prison for a revocation of supervised release. Finally, two variables were marginally related to participation in DVIPP: offenders with longer prison stays were more likely to participate, and offenders who received visits while incarcerated were more likely to participate.

[7] Discharge with no supervision was not measured separately because there were too few cases (n = 18 in the unmatched sample).

Table 1. Logistic Regression Model for Program Selection

Predictor	*Predictor Description*	*Coefficient*	*SE*
Minority	Minority = 1, White = 0	0.17	0.13
Age	Offender age in years at time of release from prison	-0.002	0.01
MnSTARR violent probability	Likelihood of reconviction for a violent offense within three years of release	-0.002	0.01
Prison discipline	Number of discipline convictions during last confinement	-0.01*	0.01
Supervision revocations	Number of prior revocations while under correctional supervision	-0.06	0.05
Total convictions	Total number of convictions, including index conviction(s)	0.01	0.01
Felony convictions	Total number of felonies, including index conviction(s)	0.12**	0.04
Felony specialization/diversity	Specialization/diversity in felony offending	0.37	0.42
Violent convictions	Total number of violent offenses, including index conviction(s)	-0.001	0.04
Violent specialization/diversity	Specialization/diversity in violent offending	-0.10	0.50
Drug convictions	Total number of drug offenses, including index conviction(s)	0.03	0.07
Drug specialization/diversity	Specialization/diversity in drug offending	1.15	2.82
Property convictions	Total number of property offenses, including index conviction(s)	-0.10*	0.04
Property specialization/diversity	Specialization/diversity in property offending	-0.52	1.13
Married	Married = 1, unmarried = 0	-0.01	0.20
Metro commitment	Prison commit from Twin Cities metropolitan area = 1, Greater Minnesota = 0	-0.05	0.12
New commitment	New court commitment = 1, probation or release violator = 0	0.66***	0.17
Length of stay	Number of months between prison admission and release dates	0.01†	0.002
Suicidal history	History of suicidal tendencies = 1; no history of suicidal tendencies = 0	0.15	0.13
Security threat group	Security threat group (STG) or gang affiliation criteria, 0–10	0.02	0.04
Secondary degree	Secondary degree = 1, less than secondary degree = 0	0.19	0.13
Visited during last confinement	Received any visits during last confinement = 1, no visits = 0	0.21†	0.12
Constant		-2.83	3.11
N		721	
Log-likelihood		-352.79	
Pseudo R^2		0.10	

***p < .001, **p < .01, *p < .05, †p < .10

After obtaining propensity scores on the 721 offenders included in the propensity score model, the study utilized a "greedy" matching procedure using a without replacement method in which DVIPP participants and nonparticipants were matched within a caliper (i.e., range of propensity scores) of 0.3. Matches were obtained for all 169 offenders who participated in DVIPP, resulting in a final sample of 338.

Table 2 presents statistics that measure the degree to which PSM was effective in reducing observable selection bias. The bias measure presented in the table quantifies the amount of bias (i.e., the standardized mean difference) between the treatment and comparison groups. According to Rosenbaum and Rubin (1985), bias values over 20 are considered unbalanced. Before matching, there were seven unbalanced covariates – supervision revocations, total convictions, felony convictions, violent convictions, commitment type, length of stay, and prison visitation. Table 2 shows that, after matching, balance between the DVIPP group and the comparison group was achieved, as all of the covariates and propensity score had bias values below 20.

Analytical Procedure

Because information on the timing of recidivism events was available, this study used survival analysis to examine recidivism. Survival analyses are preferable over logistic regression because they allow for an examination of not only whether offenders recidivate, but also when they do so. In particular, this study used Cox regression models, which incorporate both a "status" variable (a binary variable with a value of 1 if the event occurred) and a "time" variable. The "time" variable measured the amount of time (in months) between the release date and the date of the first recidivism event (or March 10, 2019, for those who did not recidivate).

There should be a minimum of 5-10 events – or cases with a score of 1 on the dependent variable – for each independent variable (Penduzzi et al., 1996; Vittinghoff & McCulloch, 2007).

Table 2. Propensity Score Matching and Covariate Balance for Program Selection

Variable	*Sample*	*Treatment Mean*	*Control Mean*	*Bias*	*Bias Reduction*	*t Test p Value*
Propensity score	Total	0.32	0.21	79.5		0.00*
	Matched	0.32	0.32	0.7	-99.1	0.95
Minority	Total	0.67	0.59	16.9		0.06†
	Matched	0.67	0.68	2.5	-85.5	0.82
Age	Total	35.75	34.76	10.8		0.23
	Matched	35.75	35.86	1.2	-88.7	0.91
MnSTARR violent	Total	27.58	26.04	11.0		0.23
probability	Matched	27.58	26.91	4.8	-56.1	0.66
Prison discipline	Total	4.53	5.86	10.1		0.34
	Matched	4.53	3.76	5.8	-42.2	0.27
Supervision revocations	Total	1.15	1.54	30.4		0.00*
	Matched	1.15	1.20	3.7	-87.8	0.72
Total convictions	Total	14.65	12.64	28.0		0.00*
	Matched	14.65	14.62	0.5	-98.2	0.96
Felony convictions	Total	5.41	4.33	40.1		0.00*
	Matched	5.41	5.44	1.1	-97.3	0.93
Felony	Total	0.79	0.79	1.0		0.92
specialization/diversity	Matched	0.79	0.80	1.7	78.1	0.86
Violent convictions	Total	3.54	3.03	24.2		0.01*
	Matched	3.54	3.34	9.3	-61.5	0.40
Violent	Total	0.89	0.88	9.4		0.31
specialization/diversity	Matched	0.89	0.90	5.8	-38.2	0.53
Drug convictions	Total	0.77	0.57	16.7		0.04*
	Matched	0.77	0.86	7.9	-52.8	0.52
Drug	Total	0.99	0.99	2.4		0.79
specialization/diversity	Matched	0.99	0.99	9.7	305.4	0.43
Property convictions	Total	1.87	1.91	1.5		0.87
	Matched	1.87	1.97	3.8	150.6	0.73
Property	Total	0.97	0.96	8.8		0.34
specialization/diversity	Matched	0.97	0.96	8.1	-8.4	0.51
Married	Total	0.07	0.09	5.5		0.54
	Matched	0.07	0.09	4.2	-23.5	0.69
Metro commitment	Total	0.53	0.50	5.7		0.52
	Matched	0.53	0.51	3.5	-37.6	0.75
New commitment	Total	0.91	0.74	44.5		0.00*
	Matched	0.91	0.90	1.6	-96.4	0.86
Length of stay	Total	17.62	13.25	21.9		0.02*
	Matched	17.62	17.38	1.2	-94.5	0.93
Suicidal history	Total	0.25	0.23	3.5		0.69
	Matched	0.25	0.24	2.8	-20.2	0.80
Security threat group	Total	0.83	0.64	12.8		0.14
	Matched	0.83	0.92	6.2	-51.6	0.60
Secondary degree	Total	0.79	0.73	14.8		0.10
	Matched	0.79	0.76	6.9	-52.9	0.51
Visited during last	Total	0.41	0.32	20.2		0.02*
confinement	Matched	0.41	0.41	1.2	-93.9	0.91

*p < .05, †p < .10

The sample size for this study is small, and as a result there are few cases with recidivism events; the number of events for the analyses predicting general recidivism ranged from 20 (reincarceration) to 201 (rearrest), the number of events for the analyses predicting violent recidivism ranged from 28 (reconviction) to 122 (rearrest), and the number of events for the analyses predicting domestic violence recidivism ranged from 13 (reconviction) to 82 (rearrest). Many of the control variables described above were included in the calculation of the MnSTARR; therefore, they were not included in the recidivism analyses in order to maximize the number of events per variable (EPV).

In addition to participation in DVIPP, the independent variables included in the recidivism analyses were post-release supervision type, offender race, and either the MnSTARR overall risk level (to predict general recidivism) or the MnSTARR non-sexual violent assessment (to predict violent and domestic violence recidivism). Reducing the number of independent variables resulted in EPVs above five for all analyses except the one predicting domestic violence reconviction among program dropouts (EPV = 3.25). No problems with collinearity were found; the correlations between predictors were all lower than 0.5 and the tolerance values for all predictors were above 0.4.

Results

Recidivism Rates

Table 3 presents descriptive statistics comparing DVIPP participants and offenders in the comparison group for the eight outcome measures. The results show that general recidivism rates were not substantially different between the comparison group and those who entered, completed, or dropped out of DVIPP. When looking at offense-specific recidivism rates, rearrest for violent offenses and for domestic violence offenses appear to be higher among DVIPP completers (41.3%

and 32.1%, respectively) than among the comparison group (33.1% and 21.9%, respectively). However, it is possible that these observed differences may be due to other factors. To statistically control for the impact of other factors on reoffending, Cox regression models were estimated for each of the ten recidivism variables across the three treatment measures (entered treatment, completed treatment, and failed to complete treatment).

Table 3. Recidivism Rates by Treatment Participation and Outcome

	Comparison Group	*Entered Program*	*Completed Program*	*Program Dropout*
General Recidivism				
Rearrest	56.8%	62.1%	63.3%	60.0%
Reconviction	27.8%	29.0%	28.4%	30.0%
Reincarceration	8.9%	7.1%	6.4%	8.3%
Revocation	34.3%	37.9%	33.0%	46.7%
Violent Recidivism				
Violent rearrest	33.1%	39.1%	41.3%	35.0%
Violent reconviction	13.0%	11.2%	11.9%	10%
Domestic Violence Recidivism				
Domestic violence rearrest	21.9%	26.6%	32.1%	16.7%
Domestic violence reconviction	7.1%	7.1%	10.1%	1.7%
N	169	169	109	60

Multivariate Results

The results of the Cox regression models predicting recidivism are presented in Table 4. The four columns on the left show the results for the four measures of general recidivism. As shown in the table, participation in DVIPP was not related to any of the measures of general recidivism, regardless of whether the participant completed or failed to complete the program. However, two of the control variables were related to recidivism. First, offenders on ISR were 62-81% more likely to return to prison due to a violation of supervised release; in addition, although the results only approached significance, offenders on ISR were 29-31% less likely to be rearrested, 39% less likely to be reconvicted, and 35% less likely to be reincarcerated for a new felony. Second, the MnSTARR risk assessment was significantly or marginally related to all four types of recidivism; for each one-level increase of the MnSTARR score, the risk of rearrest

increased by 34-41%, the risk of reconviction increased by 37-46%, the risk of reincarceration increased by 89-390%, and the risk of supervised release revocation increased by 28-46%.

Table 4 also displays the results of the Cox regression models predicting offense-specific measures of recidivism. There were no significant differences in violent recidivism between DVIPP participants and the comparison group, regardless of whether the participant completed the program or failed to complete the program. One control variable was related to violent recidivism: the MnSTARR violent recidivism assessment was significantly related to violent recidivism in four of the six models; as the probability of violent recidivism calculated by the MnSTARR increased, the risk of rearrest increased by 2-3% and the risk of reconviction increased by 3%.

The right-most columns of Table 4 show the results of the models predicting domestic violence recidivism. The results show one marginally significant relationship between DVIPP status and domestic violence recidivism: offenders who completed DVIPP or participated until their release from prison were 51% more likely to be rearrested than were offenders in the comparison group ($p < .10$). In addition, the MnSTARR violent assessment successfully predicted domestic violence-specific rearrest; for each percent increase in the probability of violent recidivism predicted by the MnSTARR, the risk of rearrest for a domestic violence offense increased by 3-4%. None of the independent variables were related to the risk of reconviction for a domestic violence offense.

Supplemental Analyses

Supplemental analyses (available on request) were conducted in which offenders were only included in the comparison group if they were housed in one of the two participating facilities during the approximate study period (November 2016-December 2017). About 40% of the comparison group (221 offenders) were housed in a participating facility during this time. Using

Table 4. Results of Cox Regression Models Predicting Recidivism

	General recidivism				*Violent recidivism*		*Domestic violence recidivism*	
	Rearrest	*Reconviction*	*Reincarceration*	*Revocation*	*Rearrest*	*Reconviction*	*Rearrest*	*Reconviction*
Program participant	1.02 (0.14)	0.98 (0.21)	0.70 (0.39)	1.05 (0.18)	1.10 (0.18)	0.80 (0.31)	1.15 (0.22)	0.96 (0.41)
ISR	0.77 (0.17)	0.61 (0.26)†	0.42 (0.54)	1.64 (0.19)*	1.28 (0.20)	0.54 (0.42)	1.37 (0.24)	0.39 (0.62)
MnSTARR	1.34 (0.09)**	1.37 (0.13)*	2.24 (0.35)*	1.38 (0.12)**	1.02 (0.01)***	1.01 (0.01)	1.03 (0.01)***	1.00 (0.02)
Minority	1.01 (0.15)	1.14 (0.23)	1.24 (0.44)	1.40 (0.21)	0.90 (0.20)	1.15 (0.35)	0.90 (0.24)	0.99 (0.44)
N = 338								
Program completer	1.07 (0.16)	0.98 (0.23)	0.63 (0.46)	0.88 (0.21)	1.24 (0.20)	0.87 (0.35)	1.51 (0.24)†	1.38 (0.42)
ISR	0.69 (0.19)†	0.63 (0.29)	0.41 (0.63)	1.62 (0.22)*	1.12 (0.22)	0.55 (0.45)	1.19 (0.26)	0.43 (0.62)
MnSTARR	1.41 (0.10)***	1.46 (0.15)*	1.89 (0.35)†	1.46 (0.14)**	1.03 (0.01)***	1.03 (0.01)*	1.04 (0.01)***	1.01 (0.02)
Minority	1.02 (0.17)	1.25 (0.26)	1.98 (0.56)	1.37 (0.24)	0.83 (0.21)	1.29 (0.39)	0.89 (0.26)	1.06 (0.46)
N = 278								
Program dropout	0.93 (0.20)	0.99 (0.28)	0.80 (0.52)	1.38 (0.23)	0.91 (0.26)	0.73 (0.46)	0.64 (0.36)	0.24 (1.04)
ISR	0.71 (0.21)†	0.63 (0.31)	0.35 (0.63)†	1.81 (0.23)**	1.35 (0.24)	0.55 (0.50)	1.65 (0.31)	0.23 (1.04)
MnSTARR	1.36 (0.11)**	1.39 (0.17)*	4.90 (0.68)*	1.28 (0.14)†	1.02 (0.01)**	1.00 (0.01)	1.03 (0.01)**	0.98 (0.02)
Minority	0.96 (0.19	0.99 (0.27)	1.68 (0.56)	1.40 (0.25)	1.10 (0.26)	1.11 (0.41)	1.01 (0.33)	0.91 (0.58)
N = 229								

Hazard ratios are presented with standard errors in parentheses.***p < .001, **p < .01, *p < .05, †p < .10

the same PSM procedure as the main analyses, 35 offenders in the treatment group could not be matched, resulting in a smaller sample of 268 offenders. As with the main analyses, balance was achieved on all variables after matching. The multivariate results were substantially similar to the main analyses, with two exceptions: when examining domestic violence rearrest, (1) there was no difference between program completers and the comparison group and (2) program dropouts were less likely to be rearrested than the comparison group, although this difference was only marginally significant.

Discussion

While the results presented above show that the DVIPP did not reduce general, violent, or domestic violence recidivism, there are limitations of the study that must be acknowledged when considering the implications of the findings. First, this study was only able to examine official measures of reoffending. The Bureau of Justice Statistics estimates that 46% of IPV victimizations between 2006 and 2010 were not reported to the police (Langton & Berzofsky, 2012); therefore, this study likely does not capture all behavior related to IPV. Third, this study focuses on reoffending rather than other outcomes that could be impacted by the program, such as attitudes toward women and other behavior within romantic relationsh16ips. Therefore, the program could have had positive impacts on offenders' and victims' lives that were not measured in this study (see Lee & Stohr, 2012).

Still, since the main goal of a correctional program is to reduce reoffending, it is important to understand the possible reasons that the program did not meet this goal. There were some obstacles to implementation that may explain the DVIPP's lack of success. First, *Creating a Process of Change for Men Who Batter* was designed as a 26-week intervention. Therefore, the DVIPP did not implement the curriculum as intended, as the curriculum was covered in only 16

weeks. Second, the Duluth Model was designed as a community-based intervention for misdemeanor domestic violence offenders. Therefore, the program may not have ever been intended to address men with significant histories of severe domestic violence or those with histories of general violence, both of which made up the population targeted by the DVIPP.

Third, there was turnover in the CTC role, who served as the group facilitators; there were three staff changes during the time period covered by the study. This turnover can impact trust between participants and the facilitator and reduce program effectiveness (Farabee et al., 1999; Gendreau, Goggin, & Smith, 1999). A growing body of literature suggests that strategies such as motivational interviewing may increase therapeutic alliance and confidence between participants and facilitators (Alexander, Morris, Tracy, & Frye, 2010; Babcock et al., 2016; Crane & Eckhardt, 2013; Eckhardt et al., 2013; Lila, Gracia, & Catalá-Miñana, 2018; Musser, Semiatin, Taft, & Murphy, 2008). Programming implemented within prisons may benefit from incorporating these strategies, as they may negate the negative impacts of turnover. Fourth, because the program was implemented by Victim Assistance staff, offenders may have had trouble establishing a rapport with the facilitators, impacting their participation in the program (see Simpson, 2001).

Fifth, some may not consider the DVIPP a true implementation of the Duluth Model because it was implemented as a stand-alone correctional program rather than in coordination with pre-sentencing initiatives to compile information from different sources and establish standard responses to IPV across multiple agencies (see Shepard et al., 2002). Sixth, any offender incarcerated in a participating facility who had a history of IPV was eligible for the program; according to the risk-needs-responsivity (RNR) model, programming should be offered to high-risk offenders whose criminogenic needs will be addressed by the curriculum (Andrews, Zinger, Hoge, Bonta, Gendreau, & Cullen, 1990; Lowenkamp, Latessa, & Holsinger, 2006).

In addition, some aspects of the prison setting affected the program's implementation and success. First, it was sometimes necessary to cancel group meetings due to lockdowns and other security reasons.[8] In those instances, homework was assigned and participants had one-on-one sessions with the facilitator; therefore, while the entire curriculum was provided, some offenders were not able to work through all the material in a group setting. Second, unlike those serving sentences in the community, incarcerated offenders typically do not have continuing face-to-face contact with the victims of their offenses.[9] Therefore, offenders are not able to put the skills they learn in the program into practice until well after they have completed the program. Similarly, the program was not able to incorporate victims or relationship partners into the treatment, which is an important aspect of effective IPV programs (Pitts, Givens, & McNeeley, 2009). Programs for incarcerated offenders should carefully consider adjustments that account for these issues.

The null results found here may be the result of these problems with implementation and the other limitations described above and therefore should not necessarily be taken as evidence of the ineffectiveness of the Duluth Model. Still, considering the wealth of previous research showing that these programs have only limited effects on recidivism (e.g., Arias et al., 2013; Babcock et al., 2004; Cheng et al., 2019; Feder & Wilson, 2005; Miller et al., 2013), it is also possible that the DVIPP did not reduce recidivism because the Duluth Model – on which it was based – is itself flawed. As explained by Latessa, Cullen, and Gendreau (2002), a program that does not address major criminogenic needs – factors known to contribute to offending, such as antisocial thinking styles, antisocial personality traits, and antisocial peers – is unlikely to reduce recidivism. While the curriculum focuses on particular attitudes that may be criminogenic (i.e., attitudes about women and gender roles in relationships), not all IPV can be attributed to the influence of

[8] Unfortunately, the number of sessions canceled and their topics were unknown.
[9] MnDOC visiting policy does not allow offenders to receive visits from victims associated with their active sentences.

patriarchal attitudes over offenders' relationships. In fact, Ellen Pence, one of the creators of the program, later noted that, in contrast to the philosophy that the program is based on, "many of the men [she] interviewed did not seem to articulate a desire for power over their partner" (Pence, 1999, p29). Other research supports this notion: most domestic violence offenders do not specialize in domestic violence (Piquero, Brame, Fagan, & Moffitt, 2006; Richards, Jennings, Tomsich, & Gover, 2012) and domestic violence offending is related to the same risk factors as other types of offending (Sellers, 1999).

Importantly, the Duluth Model is only designed to address violence that is perpetrated by a male partner within the context of a heterosexual relationship. Further, research suggests that issues related to race, ethnicity, immigration, socioeconomic status, religion, mental health, and disability may contribute to IPV (Bograd, 1999; Ellison, Trinitapoli, Anderson, & Johnson, 2007; Elvey & McNeeley, 2018; Kessler, Molnar, Feurer, & Appelbaum, 2001; Mays, 2006; Menjívar & Salcido, 2002). However, the curriculum is not designed to address these issues. This is an important shortcoming given that approximately two-thirds (67%) of the program participants were members of minority groups.

The results point to several recommendations for IPV programming. First, programs should follow the RNR model by, first, targeting high-risk offenders and, second, using a needs assessment to select the most appropriate participants. Johnson (2006) identified four types of violence that occurs within relationships – situational couple violence, violent resistance, intimate terrorism, and mutual violent control – that are often grouped together and labeled "domestic violence." Programs may be more effective if they target a specific type of domestic violence offender (see Langlands, Ward, & Gilchrist, 2009). Accordingly, programs based on the Duluth Model may be more effective if a screening tool is developed to identify offenders whose attitudes

favorable toward IPV contribute to their offending.

Second, correctional programs for incarcerated offenders are most effective when they begin in the facility and continue through reentry (Ndrecka, 2014). Programs for incarcerated IPV offenders should create a continuum of care in which the program continues in the community after the offender is released. This can be done by beginning treatment later in the offender's sentence so that he completes the program shortly before release, which has been shown to aid in reducing recidivism (Duwe, 2018).

Third, as cognitive-behavioral therapy (CBT) has been shown to be an effective correctional treatment (e.g., Landenberger & Lipsey, 2005), it may be useful for IPV programs to incorporate more CBT components. While many IPV programs incorporate some aspects of CBT techniques, there is insufficient research to determine its effectiveness (see Babcock et al., 2004; Smedslund, Dalsbø, Steiro, Winsvold, & Clench-Aas, 2007). A recent review (Nesset et al., 2019) found only six controlled studies published since 2007; the results suggested CBT programs may be effective in reducing violence among IPV offenders, but that there was insufficient evidence. Given the effectiveness of CBT programming among violent offenders more generally (Lee & DiGiuseppe, 2018), it is assumed that additional focus on helping offenders think creatively, develop problem-solving skills, and manage their emotions, as well as assignments such as thinking reports, may increase the effectiveness of IPV programming. It is imperative that future CBT programs developed for IPV offenders include an evaluation component. Further, as offenders may find it difficult to work through programming when they live in general population, it may be helpful to create therapeutic communities in which offenders are surrounded by staff who are trained in CBT programming and other members of the therapeutic group, allowing them to spend more time engaged in the cognitive-behavioral aspects of the program.

Prior research suggests that programs based on the Duluth Model have only limited success in reducing reoffending. However, most of the existing research examines programs that were offered in the community. This study adds to the literature by evaluating an intervention offered to offenders incarcerated for IPV. The results suggest that programs based on this model are not more successful at reducing recidivism when offered in a prison setting than when offered in the community. Programs for incarcerated IPV offenders should utilize risk and needs assessments to select participants, include community-based aftercare after release, incorporate elements from successful correctional programs such as CBT, and make adaptations to account for cultural differences (see Primm, Osher, & Gomez, 2005).

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